

AMENDMENTS TO THE DRAWINGS:

Figure 4 is amended to change the heading “REDUCED CONTRAST” to “REDUCE CONTRAST”.

The Examiner is requested to enter and consider the replacement sheets and annotated sheets showing changes made.

RESPONSE TO NON-COMPLIANT AMENDMENT
UNDER 37 C.F.R. § 1.121

In response to the Notice of Non-Compliant Amendment under 37 C.F.R. § 1.121, Applicant has revised the Amendment to include the proper status identifier “Currently amended” for claim 12, which clearly was intended to be amended by the previously filed Amendment.

For the Examiner’s convenience, the location of each change in the claims has been identified in the right-hand margin using the “track changes” feature.

Applicant submits that the Amendment is in full compliance with 37 C.F.R. § 1.121, and therefore, requests entry and consideration of the Amendment.

APPLICANT INITIATED INTERVIEW REQUEST

Applicant’s representative respectfully requests a personal interview with newly assigned Examiner Aaron M. Richer, Art Unit 2676, in the above mentioned application in accordance with M.P.E.P. § 713.01(III), to discuss the Remarks set forth below, at the Examiner’s earliest convenience.

Examiner Richer kindly is requested to contact the undersigned attorney at the local telephone number listed below (or at Applicant’s representative’s direct number at 703-761-7623) to arrange for the personal (or telephonic) interview at the Examiner’s earliest convenience.

REMARKS

Claims 1-20 are all the claims presently pending in the application.

Claims 2-17, 19, and 20 have been amended merely to make editorial changes in conformance with U.S. patent practice. No new matter is added.

It is noted that the claim amendments are made only for more particularly pointing out the invention, and not for distinguishing the invention over the prior art, narrowing the claims or for any statutory requirements of patentability. Further, Applicant specifically states that no amendment to any claim herein should be construed as a disclaimer of any interest in or right to an equivalent of any element or feature of the amended claim.

With respect to the prior art rejections, claims 1, 8, and 15 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Weitbruch, et al. (U.S. Patent Publication No. 2004/0165064).

Claims 2, 3, 5, 6, 9, 10, 12, 13, and 16-19 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Weitbruch in view of Crinon, et al. (U.S. Patent Publication No. 2002/0191846).

Claims 4, 11, and 20 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Weitbruch in view of Hamilton (U.S. Patent Publication No. 2001/0035874).

Claims 7 and 14 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Weitbruch in view of Crinon and in further view of Hamilton.

These rejections are respectfully traversed in the following discussion.

I. THE CLAIMED INVENTION

The claimed invention is directed to an improved method and device for preventing burn-in of a display screen of an image display device.

For example, independent claim 1 exemplarily defines a device for preventing burn-in of a display screen of an image display device, the device including a blurring device for applying a blurring process to an input image signal to obtain a blurred image signal, and a contrast inversion device for inverting contrast of a luminance level of the blurred image signal to generate a burn-in prevention image signal.

Independent claim 8 exemplarily defines a method of preventing burn-in of a display screen of an image display device, the method including A) subjecting an input image signal to blurring to obtain a blurred image signal, and B) subjecting the blurred image signal to contrast inversion to invert contrast of a luminance level of the blurred image signal to generate a burn-in prevention image signal.

Independent claim 15 exemplarily defines a display apparatus including a display device including a display screen, a contour modification circuit for blurring an input image to obtain a blurred image when the input image includes a still image, a contrast inversion circuit for inverting contrast of a luminance level of the blurred image to obtain a contrast inverted image, and a driver for displaying the contrast inverted image on the display screen when the input image includes a still image.

II. THE PRIOR ART REJECTIONS

A. Claims 1, 8, and 15 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Weitbruch.

The Examiner alleges that Weitbruch discloses all of the features of the claimed invention. Applicant respectfully submits, however, that there are features of the claimed invention which are not disclosed or suggested by Weitbruch. Therefore, Applicant traverses this rejection.

Independent claim 1

Independent claim 1 recites a device for preventing burn-in of a display screen of an image display device, the device including:

a blurring device for applying a blurring process to an input image signal to obtain a blurred image signal; and
a contrast inversion device for inverting contrast of a luminance level of the blurred image signal to generate a burn-in prevention image signal (emphasis added).

According to the claimed invention, the contrast inversion device inverts the contrast of the blurred image signal. In other words, the image signal is blurred prior to the contrast inversion.

In comparison, the Examiner alleges that paragraphs 0023 and 0024 of Weitbruch disclose a blurring device for applying a blurring process to an input image signal to obtain a blurred image signal (see Office Action at page 2). Particularly, the Examiner alleges that the “combined picture” from the overlay of the inverted image and the previous image result in image degradation which corresponds to the blurring device as claimed, as allegedly shown in Figure 7 of Weitbruch.

First, Applicant respectfully submits that, the Examiner’s stated position that the “overlay of the inverted image and the previous image result in image degradation which corresponds to the blurring device as claimed” and shown in Figure 7, clearly contradicts the specific language recited in independent claim 1.

That is, the Examiner relies on the inverted image (and thus, the inverting device) as disclosing the claimed “blurring device”.

However, the claimed invention clearly recites that the claimed “*contrast inverting device*” inverts the contrast of the blurred image signal. That is, the image signal is first blurred by the blurring device. After the image signal is blurred, the contrast of the blurred image signal is inverted by the contrast inverting device.

As such, when considering the specific language of the claimed invention, for example, as recited in independent claim 1, the Examiner’s stated position that the inverted image of Weitbruch produces the blurred image clearly does not establish that Weitbruch anticipates (or for that matter, renders obvious) all of the features of the claimed invention, in which the contrast inverting device inverts the contrast of the blurred image which is blurred by the blurring device.

Second, Applicant submits that independent claim 1 explicitly recites a blurring device for applying a blurring process to an input signal to obtain a blurred image signal.

In comparison, Weitbruch does not disclose or suggest such a distinct blurring device, or for that matter, blurring an image signal at all.

Instead, Weitbruch discloses that:

[0023] According to one aspect of the invention, a specific dynamic solution enabling to reduce the visibility of short-term burning effect in real time will be possible. Here, a correction picture is calculated on the basis of at least one preceding picture being made responsible for a short-term burning effect and the correction picture will be combined with a current picture, the combined picture will be displayed for reducing ghost images resulting from the at least one preceding picture.

However, the relied upon paragraph 0023 does not itself describe the “correction picture” or the device used to produce the “correction picture”, or for that matter, what constitutes the “corrected picture”.

Turning to the Detailed Description of Weitbruch, Weitbruch first discloses a “wiper” picture which merely is comparable to a screen saver, and thus, is not believed to be germane to the present invention.

Even assuming *arguendo* that the disclosed “wiper” of Weitbruch were germane to the claimed invention, Weitbruch clearly discloses that:

[0076] When the burn-in pattern is well known (case of professional application), this can be inverted and used for generating a specific wiper.

[0077] A burn-in pattern can be computed by averaging the displayed pictures.

[0078] According to the first possibility for professional applications based on known static picture(s) a new function can be added in the PDP giving the possibility to memorize one picture when only one picture is responsible of the "long term burn-in". If more pictures are responsible, this function will sum up a certain number of pictures in order to dispose of the burning picture. When summing up the video levels for corresponding pixels, the maximum possible video level will not be exceeded. E.g. if the video levels 255 and 250 are summed up, the resulting value is not 505 but remains 255 in case of 8 bit video level numbers. The procedure of summing up different video picture to get the burning picture is illustrated in FIG. 7.

That is, Weitbruch merely discloses that, when only one picture is responsible for burn-in, the one picture is memorized. On the other hand, if more than one picture is responsible for burn-in, then Weitbruch sums up these pictures. In fact, Figure 7 merely relates to a procedure of summing up different video picture to get a burning picture.

Weitbruch further states that:

[0079] Based on this resulting burning picture, an inverted picture can be computed as shown in FIG. 8 or in case of a single original picture it can be immediately inverted. ...

Thus, according to Weitbruch, if only a single picture is responsible for the burn-in, then the single picture is immediately inverted. Therefore, no blurring takes place in this case.

Moreover, when more than one picture is responsible for burn-in, Weitbruch merely combines these pictures. Weitbruch does not, however, disclose or suggest blurring an image signal, as claimed, but instead merely combines more than one different picture.

That is, in Weitbruch, no processing (i.e., blurring) is performed on any of the individual pictures. Instead, the pictures are merely combined.

Thus, Weitbruch clearly does not disclose or suggest the explicitly recited “blurring device for applying a blurring process to an input image signal to obtain a blurred image signal”, as recited in independent claim 1.

On the other hand, with reference to Figure 9, Weitbruch discloses a second possibility of global aging based on unknown displayed picture(s) in which Weitbruch merely memorizes an average picture which is generally responsible for an aging of the panel (e.g., see Weitbruch at paragraph 0087).

However, as mentioned above, by merely combining or averaging the pictures, Weitbruch does not disclose or suggest blurring an image signal, as claimed. That is, Weitbruch clearly does not disclose or suggest the explicitly recited “blurring device for applying a blurring process to an input image signal to obtain a blurred image signal”, as defined by independent claim 1.

In fact, Weitbruch clearly discloses only that an average picture is computed based on the pictures responsible for burn-in. Weitbruch does not, however, disclose or suggest “*a blurring device for applying a blurring process to an input image signal to obtain a blurred image signal*”, as defined by independent claim 1.

Thus, Applicant submits that Weitbruch clearly does not disclose or suggest all of the features of the claimed invention.

Applicant submits that independent claims 8 and 15 are patentable over Weitbruch for somewhat similar reasons as those set forth above.

Independent claim 8

For example, independent claim 8 recites a method of preventing burn-in of a display screen of an image display device, the method including:

- A) *subjecting an input image signal to blurring to obtain a blurred image signal; and*
- B) *subjecting the blurred image signal to contrast inversion to invert contrast of a luminance level of the blurred image signal to generate a burn-in prevention image signal* (emphasis added).

In comparison, Weitbruch merely discloses that an average picture is computed based on the pictures responsible for burn-in. Weitbruch does not, however, disclose or suggest “*subjecting an input image signal to blurring to obtain a blurred image signal*”, as recited in independent claim 8.

Independent claim 15

Independent claim 15 recites display apparatus including:

- a display device including a display screen;*
- a contour modification circuit for blurring an input image to obtain a blurred image when the input image includes a still image;*
- a contrast inversion circuit for inverting contrast of a luminance level of the blurred image to obtain a contrast inverted image; and*

a driver for displaying the contrast inverted image on the display screen when the input image includes a still image (emphasis added).

In comparison, Weitbruch merely discloses that an average picture is computed based on the pictures responsible for burn-in. Weitbruch does not, however, disclose or suggest “*a contour modification circuit for blurring an input image to obtain a blurred image when the input image includes a still image*”, as recited in independent claim 15.

For the foregoing reasons, Weitbruch does not disclose or suggest all of the features of the claimed invention. Therefore, the Examiner is requested to reconsider and withdraw this rejection and to permit claims 1, 8, and 15 to pass to immediate allowance.

B. Claims 2, 3, 5, 6, 9, 10, 12, 13, and 16-19 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Weitbruch in view of Crinon.

The Examiner alleges that the combination of Weitbruch and Crinon disclose or suggest all of the features of the claimed invention. Applicant respectfully submits, however, that there are features of the claimed invention which are not disclosed or suggested by Weitbruch and Crinon, either individually or in combination. Therefore, Applicant traverses this rejection.

The Examiner alleges that Crinon makes up for the deficiencies of Weitbruch. Particularly, the Examiner relies on Crinon for disclosing a quantizer (see Crinon at paragraph 0038).

However, as the Examiner points out, Crinon merely discloses a quantizer that is used to handle the macroblocks input, which works to combine the foreground and background images. That is, Crinon has nothing to do with preventing burn-in.

Instead, Crinon is directed to mosaic generation with an automatic segmentation system for distinguishing foreground and background objects (e.g., see Crinon at Abstract; see also

As the Examiner surely knows, it is not enough merely to show that the individual features can be found in distinct prior art references. Instead, the Examiner must establish that the ordinarily skilled artisan would have been motivated after reading the references to combine the cited references in the manner alleged in order to arrive at the claimed invention.

In this case, the Examiner has merely identified a reference that includes the individual element of a quantizer. However, the quantizer of Crinon has nothing to do with preventing burn-in. In fact, the quantizer of Crinon has nothing to do with blurring the image.

Thus, Applicant submits that the ordinarily skilled artisan would not have been motivated to combine the quantizer of Crinon with Weitbruch, absent the benefit of Applicant's own disclosure (i.e., impermissible hindsight based analysis).

Moreover, even assuming *arguendo* that it would have been obvious to combine these references, Applicant submits that the resulting combination still would not result in the features of the claimed invention, since the quantizer of Crinon does not blur the image, according to the claimed invention.

For the foregoing reasons, Weitbruch and Crinon, either individually or in combination, do not disclose or suggest all of the features of the claimed invention. Therefore, the Examiner is requested to reconsider and withdraw this rejection and to permit claims 2, 3, 5, 6, 9, 10, 12, 13, and 16-19 to pass to immediate allowance.

C. Claims 4, 11, and 20 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Weitbruch in view of Hamilton (U.S. Patent Publication No. 2001/0035874).

The Examiner alleges that the combination of Weitbruch and Hamilton disclose or suggest all of the features of the claimed invention. Applicant respectfully submits, however, that there are features of the claimed invention which are not disclosed or suggested by Weitbruch and Hamilton, either individually or in combination. Therefore, Applicant traverses this rejection.

Applicant submits that claims 4, 11, and 20 would be patentable over the cited references for at least somewhat similar features as those set forth above with respect to independent claims 1, 8, and 15, as well as for the additional features recited therein.

Applicant notes that Hamilton does not make up for the deficiencies of independent claims 1, 8, and 15, as set forth above, and indeed, is not even relied upon for the features of independent claims 1, 8, and 15.

For the foregoing reasons, Weitbruch and Hamilton, either individually or in combination, do not disclose or suggest all of the features of the claimed invention. Therefore, the Examiner is requested to reconsider and withdraw this rejection and to permit claims 4, 11, and 20 to pass to immediate allowance.

D. Claims 7 and 14 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Weitbruch in view of Crinon and in further view of Hamilton.

The Examiner alleges that the combination of Weitbruch, Crinon, and Hamilton disclose or suggest all of the features of the claimed invention. Applicant respectfully submits, however, that there are features of the claimed invention which are not disclosed

or suggested by Weitbruch, Crinon, and Hamilton, either individually or in combination.

Therefore, Applicant traverses this rejection.

Applicant submits that claims 7 and 14 would be patentable over the cited references for at least somewhat similar features as those set forth above with respect to independent claims 1, 8, and 15, as well as for the additional features recited therein.

Applicant notes that Crinon and Hamilton do not make up for the deficiencies of independent claims 1, 8, and 15, as set forth above, and indeed, are not even relied upon for the features of independent claims 1, 8, and 15.

For the foregoing reasons, Weitbruch, Crinon, and Hamilton, either individually or in combination, do not disclose or suggest all of the features of the claimed invention. Therefore, the Examiner is requested to reconsider and withdraw this rejection and to permit claims 7 and 14 to pass to immediate allowance.

III. FORMAL MATTERS

The Examiner is requested to acknowledge receipt of and approve the formal drawings filed on June 7, 2004.

Applicant notes that Figure 4 is amended to change the heading “REDUCED CONTRAST” to “REDUCE CONTRAST”. The Examiner is requested to enter and consider the replacement sheets and annotated sheets showing changes made.

IV. CONCLUSION

In view of the foregoing, Applicant submits that claims 1-20, all the claims presently pending in the application, are patentably distinct over the prior art of record

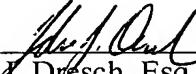
and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Respectfully Submitted,

Date: March 24, 2006


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FIG. 4

